

# DEVELOPMENT OF TOOLS FOR CHILDREN'S RISK ASSESSMENT BASED UPON LIFE-STAGE SPECIFIC EXPOSURE

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**Issue:** What critical information is needed to fully define exposure and contributors to exposure, in order to conduct exposure and risk assessments for children?

## NCEA's Scientific Response to Children's Exposure Differences



Internal and external scientific workshops on specific exposure factors

### Products:

- Child-specific Exposure Factors Handbook
- Extramural research where data gaps exist

### Goals

- Update the *Child-Specific Exposure Factors Handbook* by 2006 & the *Exposure Factors Handbook* by 2007
- Provide yearly updates to the Guide to Current Literature on the Exposure Factors Program Homepage
- Provide companion documents to the Handbooks
- Provide consultation services to clients

### First Steps to Achieve Goals

- Established an Exposure Factors team
- Established an Agency-wide Exposure Factors Workgroup



### High Priority Areas Identified by Workgroup in Fall 2004

#### Colloquium

- Soil ingestion for adults and children
- Mouthing behavior data
- Defining high-end populations
  - Farm families
  - Native Americans
  - Other sustenance populations (e.g., subsistence fishermen)
- Develop guidance on the use of fish consumption data
- Developing longitudinal data and methods

### Current Activities

- Soil ingestion/mouthing behavior workshop to be held in May, 2005
- Development of a Pesticides Exposure Factors Handbook by 2006
- Work assignments in progress to update Child-Specific EFH and EFH
- New work assignment to develop a Fish Consumption Assessment Guidance
- New work assignment on development of inhalation rates using latest data from USDA for the derivation of energy expenditures
- Conducting research on correlations among food consumption factors
- Completing reports on:
  - fat intake and composition of individual's diet
  - fish consumption for the Tulalip and Squaxin tribes
  - reanalysis of four state fish consumption surveys
  - soil ingestion based on arsenic in urine data



### How will NCEA keep the Handbook up-to-date?

Updates will be provided via Internet as new data are available:  
<http://cfpub.epa.gov/ncea/cfm/efprog.cfm>



EPA Risk Assessment Forum sponsored external peer workshop and peer reviews

### Product:

Guidance on Selection of Age Groups for Monitoring and Estimating Exposure of Children to Environmental Contaminants



### Differences Between Children and Adults- Anatomy - Physiology - Behavior

#### Goal of Age Groups Guidance

- Provide a recommended starting point for EPA scientists to consider when assessing children's exposure to environmental contaminants and the resultant potential dose.
- Generating the Technical Basis for Guidance – Use of Peer Involvement

### Risk Assessment Forum's Internal / External Workgroup on Age Groups for Exposure Assessment

- Workshop held in July 2000: Workshop on Issues Associated with Considering Developmental Changes in Behavior and Anatomy when Assessing Exposure to Children
- Workshop participants included national experts in the fields of pediatric medicine, toxicology, risk assessment, and public health.
- Participants were divided into two subgroups:
  - behavioral development
  - physiology and anatomical growth
- Workshop report - <http://cfpub.epa.gov/ncea/raf/wrkshops.cfm>

**Result: Age Groups for Monitoring and Estimating Children's Exposure**  
<http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=55887>

#### Age Groups < 1 Year

birth to < 1 month  
 1 to < 3 months  
 3 to < 6 months  
 6 to < 12 months



#### Age Groups > 1 Year

1 to < 2 years  
 2 to < 3 years  
 3 to < 6 years  
 6 to < 11 years  
 11 to < 16 years  
 16 to < 18 years  
 18 to < 21 years

### 2004 External Peer Review of Age Groups for Children's Exposure: Conclusions and recommendations

- Consensus on recommended groups
- EPA should consider how to address prenatal and perinatal age groups
- EPA should look at age groups among older adults and females of child bearing age
- Exemplify how different exposure scenarios and data availability may suggest combining or splitting recommended age groups



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